WHAT IS CLAIMED IS:

1. A self-expanding stent having longitudinal flexibility for implanting in a body lumen and being expandable from a compressed condition to an expanded condition, comprising:

a plurality of adjacent cylindrical elements made from a self-expanding material, each cylindrical element having a circumference extending around a longitudinal stent axis and being substantially independently expandable in the radial direction, wherein the plurality of adjacent cylindrical elements are arranged in alignment along the longitudinal stent axis and form a generally tubular member, the cylindrical elements at each end of the stent being formed in a generally serpentine wave pattern having a plurality of double curved portions which form the outermost edge of the stent; and

a plurality of interconnecting members extending between the adjacent cylindrical elements and connecting the adjacent cylindrical elements to one another, wherein some of the interconnecting members are aligned collinearly with respect to each other to form a continuous spine which extends along the length of the stent.

2. The stent of claim 1, wherein the cylindrical elements are formed in a generally serpentine wave pattern transverse to the longitudinal axis and contain alternating valley portions and peak portions.

3. The stent of claim 2, wherein the interconnecting members are connected at the double curved portions of each cylindrical element.

4. The stent of claim 1, wherein the plurality of interconnecting members form a plurality of continuous spines which extend along the length of the stent.

5. The stent of claim 1, wherein a plurality of interconnecting members attach each of the end cylindrical elements to an adjacent cylindrical element.

6. The stent of claim 1, wherein said stent is formed of a biocompatible material such as nickel titanium alloy.

7. The stent of claim 1, wherein the stent is formed from a single piece of tubing.

8. The stent of claim 1, wherein the valley portions include U-shaped portions and W-shaped portions and the peak portions include inverted U-shaped portions.

9. The stent of claim 1, wherein the U-shaped and inverted U-shaped portions have legs defining the shape of the respective portion with the legs of each U-shaped and inverted U-shaped portion being inverted slightly inward to each other.

10. The stent of claim 1, wherein the W-shaped portions have outer legs defining the shape of the respective portion with the outer legs of each W-shaped portion being inverted slightly inward to each other.

11. A stent delivery system comprising:

a delivery catheter having an inner tubular member having a region for mounting a compressed stent thereon with a tip assembly attached to the mounting region and an outer tubular member having a restraining sheath overlying said inner tubular member and adapted for axial movement with respect to said inner tubular member;

a housing assembly having a pull-back handle slidably mounted on a base, said inner tubular member having a proximal end

attached to said base and said outer tubular member having a proximal end attached to said pull-back handle whereby movement of said pull-back handle proximally retracts said restraining sheath proximally from the compressed stent on the inner tubular member, which the inner tubular member remains stationary.

12. The stent delivery system of claim 11, wherein said inner tubular member includes a guide wire lumen extending from the proximal end of the inner tubular member to the distal end of the inner tubular member.

13. The stent delivery system of claim 11, further including means for evacuating air from the delivery catheter.

14. The stent delivery system of claim 13, wherein an annular space is formed between the outer tubular member and the inner tubular member and further comprising an opening in the inner tubular member which is in fluid communication with the annular space and the guide wire lumen, wherein fluid may be introduced into the guide wire lumen through the opening in the inner tubular member so that the fluid is introduced into

annular space and eventually flows through the distal end of the outer tubular member and a distal opening formed on the tip assembly.

15. The stent delivery system of claim 11, wherein the tip assembly includes a tip component having a tapered shape which facilitates the insertion and delivery of the delivery catheter in a patient's body vessel, the tip component being made from PEBAX.

16. The stent delivery system of claim 15, wherein the tip component is made from PEBAX which contains $BaSO_4$.